

AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of Claims:

1. (Currently Amended) A monolithic ink-jet printhead, comprising:

a substrate having an ink chamber to be supplied with ink to be ejected, a manifold for supplying ink to the ink chamber, and an ink channel for providing communication between the ink chamber and the manifold;

a nozzle plate including a plurality of passivation layers sequentially stacked on the substrate, a metal layer formed on the plurality of passivation layers, and a nozzle, through which ink is ejected from the ink chamber, that penetrates the nozzle plate;

a heater provided between adjacent passivation layers of the plurality of passivation layers, the heater being located above the ink chamber for heating ink within the ink chamber;

a conductor provided between adjacent passivation layers of the plurality of passivation layers, the conductor being electrically connected to the heater for applying a current to the heater; and

a hydrophobic coating layer formed directly and exclusively on an outer surface of the metal layer.

2. (Currently Amended) The printhead as claimed in claim 1, wherein the hydrophobic coating layer is made of a material having appropriate chemical resistance and abrasion resistance.

3. (Original) The printhead as claimed in claim 2, wherein the hydrophobic coating layer is made of at least one material selected from the group consisting of a fluorine-containing compound and a metal.

4. (Original) The printhead as claimed in claim 3, wherein the fluorine-containing compound is selected from the group consisting of polytetrafluoroethylene (PTFE) and fluorocarbon.

5. (Original) The printhead as claimed in claim 3, wherein the metal is gold (Au).

6. (Original) The printhead as claimed in claim 1, wherein the metal layer is made of a material selected from the group consisting of nickel (Ni) and copper (Cu).

7. (Original) The printhead as claimed in claim 1, wherein the metal layer is formed by electroplating to a thickness of about 30-100  $\mu\text{m}$ .

8. (Original) The printhead as claimed in claim 1, wherein the nozzle comprises:  
a lower nozzle formed through the plurality of passivation layers; and  
an upper nozzle formed through the hydrophobic coating layer and the metal layer.

9. (Original) The printhead as claimed in claim 8, wherein the upper nozzle has a tapered shape in which a cross-sectional area decreases gradually toward an exit.

10. (Original) The printhead as claimed in claim 1, wherein the nozzle plate further comprises:

a heat conductive layer, which is located above the ink chamber and insulated from the heater and the conductor, the heat conductive layer thermally contacting the substrate and the metal layer.

11. (Original) The printhead as claimed in claim 10, wherein the heat conductive layer is made of any one of a material selected from the group consisting of aluminum, aluminum alloy, gold, and silver.

12 - 37. (Canceled).

38. (New) An ink-jet printhead, comprising:
- a nozzle;
- an ink chamber disposed below the nozzle, the ink chamber having an inlet and an outlet, the outlet in communication with the nozzle;
- a heater disposed directly above and proximate to the ink chamber, the heater configured to heat ink in the ink chamber; and
- a plurality of layers disposed on the heater, the plurality of layers including, in sequence:
- an insulation layer disposed on the heater and directly above the heater;
- a first metal layer disposed on the insulation layer and directly above the heater;
- a second metal layer disposed on the first metal layer and directly above the heater; and
- a hydrophobic layer disposed on the second metal layer and directly above the heater.

39. (New) The inkjet printhead as claimed in claim 38, further comprising an electrically conductive layer that is electrically coupled to the heater.